



First Aero Weekly in the World.

Founder and Editor : STANLEY SPOONER

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list :

1922.

Aug. 6-20 French Gliding Competition at Clermont-Ferrand

Aug. 12 Schneider Cup Seaplane Race, at Naples

Sept. 2-17 International Concours Aviatique, Rotterdam

Sept. 8-10 1,000 Miles Race round Britain for the King's Trophy

Sept. Tyrrhenian Cup, Italy

Sept. Italian Grand Prix

Sept. or Oct. R.Ae.C. Race Meeting, at Waddon

Sept. 22 Coupe Deutsch (300 kil.)

Dec. 15-

Jan. 2 Paris Aero Exhibition

1923.

June International Air Congress, London

Dec. 1 Entries Close for French Aero Engine Competition

1924.

Mar. 1 French Aero Engine Competition.

Mar. 15 Entries close for Dutch Height Indicator Competition

**What Does It Really Mean?**

R. LLOYD GEORGE'S statement in the House on June 3, that the Government have decided, as a result of the inquiry by the Committee of Imperial Defence, to adopt the scheme submitted by the Air Ministry to provide a force of 500 machines for home defence at an increased cost of £2,000,000 per annum, has been received with general satisfaction, showing as it does that the Government has at last realised the anomaly of the position into which the country has been allowed to fall in regard to our position in the air. As it had, to all intents and purposes, been universally admitted that the air is now our first line of defence, the three squadrons available for home defence could hardly hold good for long. That the trouble which the Admiralty has been causing lately has been partly responsible for the delay in arriving at a decision can scarcely be doubted, and although the relative positions of the three services has yet to be settled, in the meantime, the announcement of a definite policy to embark upon substantial additions to the Air Force can be accepted as indicating a return to a sane realisation of the changing of methods for maintaining the security of Britain's shores.

There has been a good deal of speculation as to what the announcement really means, and further official statements are required before it is possible to form any very clear opinion, but even at the present moment one or two things do emerge from the Prime Minister's statement on the Cabinet's air policy. In the course of his statement Mr. Lloyd George mentioned that "The inquiries of the Cabinet Committee on Economy in the Fighting Services have advanced sufficiently to enable me to state that this addition to the provision in the Air Estimates will not prevent a reduction in the total Estimates for the Fighting Services for the year 1923-24." In other words, the Government has decided that, by making fuller use of the air and its possibilities, savings can be effected in the other two services. Put a little differently, there are a good many things which the R.A.F. can do more economically than can the older Services. That in itself is an admission which the Air Ministry may well be proud of having secured, and the Cabinet, once having

admitted this fact, must logically undertake to see that, this being the case, the R.A.F. and the claims of the Air Ministry are given due consideration in the allocation of funds. The whole question appears to be, therefore, for this year, one of re-allocation of funds rather than of a demand necessitating fresh burdens on the taxpayer.

With reference to the 500 machines for home defence mentioned by Mr. Lloyd George, it is not by any means clear whether this figure relates to new constructions or whether a certain percentage is intended to be "reconditioned" machines, or whether it also includes the machines already in operation. The two million pounds a year extra do not appear to go very far towards 500 new machines, and it appears to be probable that this number will be composed of as many new machines as finances permit, helped out with "reconditioned" machines from stock. It should not be forgotten that, apart from machines, aero engines are required, and it must be assumed that engine manufacturers are to receive their share of orders for new engines. Then there is the ground organisation behind the squadrons, which will cost a considerable percentage of the two million pounds per annum. On the whole, therefore, it can scarcely be assumed that a very great number of new machines and engines can be ordered this year. Sir William Joynson-Hicks has been quoted as stating that, as he understands it, £300,000 will be spent on new machines during the present year, and about one million next year.

At least one thing is deadly certain, and that is that the time has undoubtedly come when the R.A.F. must be equipped with new flying stock. It should be remembered that the present machines are out of date as regards design, and that, given a free hand, our designers could do very much better today. That is not, however, the most important side of the question. Most of the present flying stock was built during the war, of war material, and was, moreover, built with the idea in mind that the life of machines at the front was but short in any case. Many of the materials used were of such a nature that they would not, today, pass the A.I.D., and the fact that they have been stored for three or four years has not improved them. There have been accidents occurring during the last few months to "reconditioned" machines which appear to indicate that the time is long past when this old stock is good enough for the equipment of the R.A.F., even under peace-time conditions.

As we have already said, our designers could do very much better today if given a free hand. Here we would, however, utter a word of warning. The specifications now issued by the Air Ministry are gradually becoming such that designers are unanimous in declaring that, if all the requirements are to be met, the performance will be no better than—in fact, it will be inferior to—that of machines of the 1916-17 period. Factors of safety are being increased, armament is getting heavier, safety devices are demanded, and instruments and "gadgets" without number have to be carried. This may all be necessary, but if it is, no increase in performance is to be expected. It is as well to point this out, since otherwise the general public may well be under the impression that, with extra money being spent, machines should soon be in existence which are vastly superior to present ones. This will not necessarily be the case, for the reasons indicated.

One thing is certain ; it would not do at the present moment to begin standardising to any extent. Many components of machines may be standardised, but the machines themselves must be left free to develop, and in this connection it is not inappropriate to quote Dr. Stratton of the American Bureau of Standards, who puts the whole question of development in a nutshell when he says, "Aircraft development depends upon aircraft use." Only by extensive and constant use can development be expected. This contrasts strongly with the Utopian idea prevailing in certain quarters nearer home that we can scrap any branch of aviation for ten years, and then start *de novo* when finances are a bit easier.

Much has been said and written about metal construction lately, and the impression has somehow got about that we are far behind other countries in this respect. Nothing could be farther from facts. We are certainly not doing a vast deal, but what little we are doing is not behind the work done by other nations as regards quality, as exemplified by the metal constructions of such firms as Boulton and Paul and Armstrong-Siddeley. At the same time, work in this direction should be in the front rank for acceleration. It is now two years since Short Brothers designed and built (in six months, we believe) the first British all-metal aeroplane. That machine was purchased by the Air Ministry, but it is still "being considered." Surely two years is sufficient time for deciding whether or not a design is of any value. If not, well perhaps it might be advisable to transfer the job. If, on the other hand, the design is promising, surely the firm should receive encouragement.

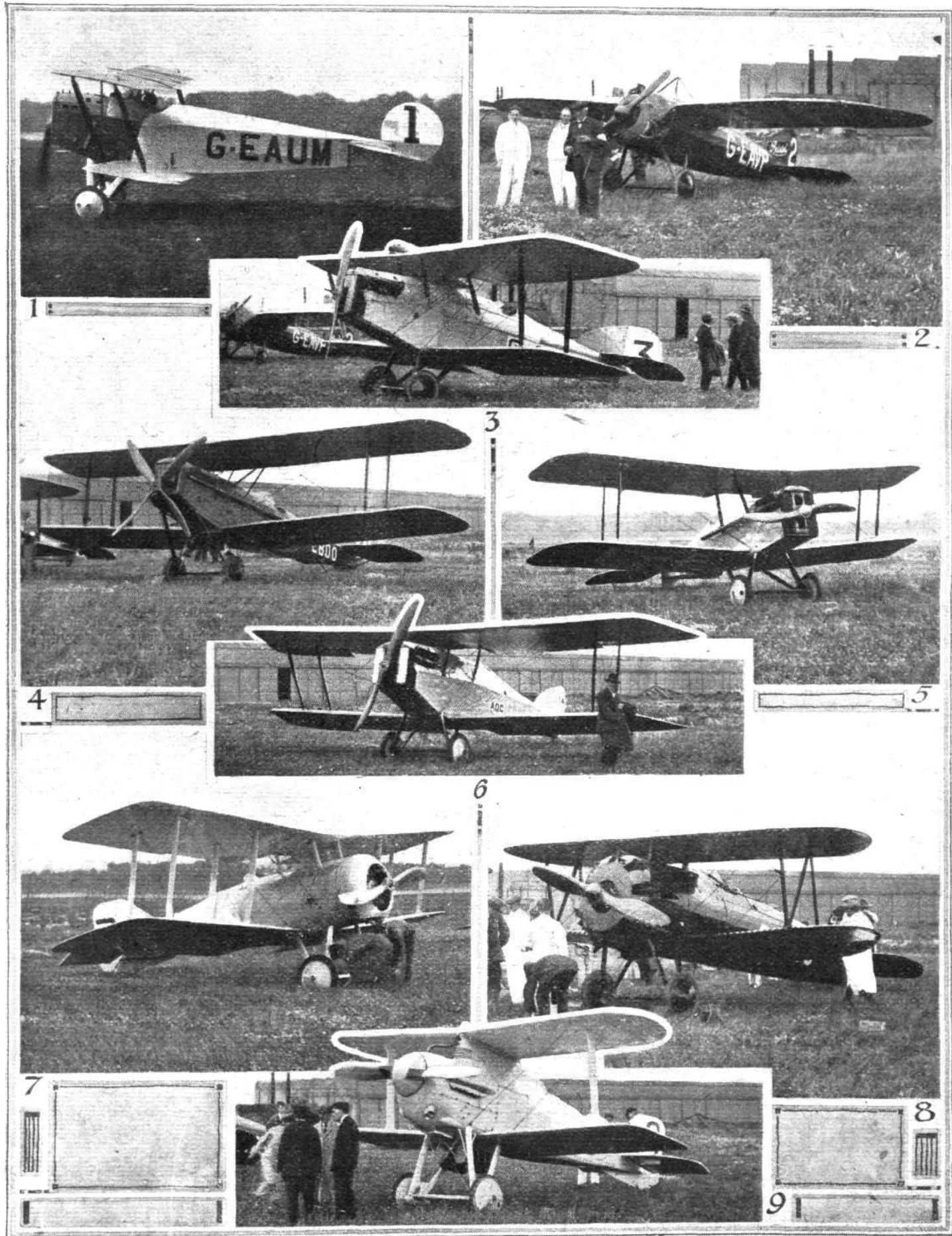
As a result of their own experiments, Shorts are building two more all-metal machines, but these are not to the order of the Air Ministry. Probably when they are complete the Air Ministry will refuse them, but will at the same time decline to give permission for the makers to sell them elsewhere, which is quaint, as if really of no use, why prevent others from trying them out ?

The Derby

The seventh Aerial Derby was not a very interesting affair. As a speed contest it did not exist, owing to the absence of the Bristol racer. It is quite evident that, if we wish to attract foreign competitors, the Royal Aero Club must increase the amount of the prizes. If the first prize in the Derby was £1,000 instead of £300, we should probably get French and Italian competitors, and there would be more widespread interest in our annual event. As it was, there was none ; the whole thing was a "family affair," and August Bank Holiday will have done little towards creating interest in British machines abroad.

The most interesting happening of the day—one which was not even on the programme—was the superb flying by Flying Officer Bulman on the Gloucestershire Aircraft Company's "Nighthawk," with Armstrong-Siddeley "Jaguar" engine. This machine was an eye-opener to most visitors, with its phenomenal climb and general handiness. When the R.A.F. comes to be re-equipped this machine must take a front rank in single-seater fighters, although the "Nighthawk," being already several years old as regards design, Mr. Folland can probably do even better now.

THE AERIAL DERBY



THE AERIAL DERBY: Photographs of the machines. 1, The Avro Baby, 35 h.p. Green. 2, The Bristol Monoplane, 100 h.p. Bristol "Lucifer." 3, Martinsyde F.6, 180 h.p. Wolseley "Viper." 4, D.H.37, 275 h.p. Rolls-Royce "Falcon." 5, S.E.5a, 200 h.p. Wolseley "Viper." 6, Martinsyde F.4, 300 h.p. Hispano-Suiza. 7, Mars III, 200 h.p. B.R.2. 8, Bristol "Bullet," 400 h.p. Bristol "Jupiter." 9, Mars I, 450 h.p. Napier "Lion."

THE SEVENTH AERIAL DERBY

We cannot honestly say that we have been particularly impressed with the Seventh Aerial Derby, which was held at Croydon Aerodrome on Monday (Bank Holiday) last. In fact, in one way or another it seemed even duller than last year's, and there prevailed an atmosphere of indifference and lack of interest over the whole proceedings that made one year for the "ordinary" Saturday afternoons at Hendon in the good old days. As regards Croydon Aerodrome as the stepping-off place, we are not sure that we are altogether

spectators lining the " free " vantage points surrounding the aerodrome as there were inside.

Shortly before two o'clock the nine competing machines were lined up on the far side of the aerodrome, opposite the enclosures, and at 1 hr. 52 mins. 26 secs. exactly the first machine, the Avro Baby (35 Green), piloted by Bert Hinkler, was started on the 200-mile journey. Coinciding with his start came a welcome burst of sunshine, and thereafter we were allowed frequent glimpses of the sun and blue sky.



THE AERIAL DERBY : Line-up of the machines

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satisfied on this point either. For one thing, the surface of the ground is none too good from the pilot's point of view, whilst Croydon Aerodrome does not appear to lend itself very well to the organisation, accommodation, etc., necessary for successful race meetings. In this respect the R.Ae.C. did their best, and, we think, very well, all things considered, but there is still room for improvement in several ways. However, to proceed with the Derby.

To begin with, the weather conditions were decidedly threatening during the early part of the day, the sky being overcast with heavy clouds, and a strong south-westerly wind gave promise of a rough time for the pilots. From about noon spectators arrived in fairly large numbers, and by the time the proceedings were in full swing the enclosures presented a well-filled appearance, but nothing compared with the crowds that have been seen at Hendon on previous occasions, whilst it seemed to us that there were as many

L. L. Carter on the 100 h.p. Lucifer-Bristol monoplane was next away at 2 hrs. 27 mins. 51 secs., and then at various intervals, according to their handicaps (given in the accompanying table), the remaining competitors were sent off as follows:—F. P. Raynham on the 200 h.p. Wolseley-Viper Martinsyde F.6, A. S. Butler on the 275 h.p. Rolls-Royce D.H.37, L. R. Tait-Cox on the 200 h.p. B.R.2 Mars III, H. H. Perry on the 200 h.p. Wolseley-Viper S.E.5a, R. H. Stocken on the 300 h.p. Hispano-Suiza Martinsyde F.4, R. A. de Haig on the 400 h.p. Jupiter Bristol "Bullet" and J. H. James on the famous 450 h.p. Napier-Lion Mars I.

C. F. Uwins, who was to have piloted the Bristol Hush-hush monoplane, had to be content with following the others—on the event board, as his mount could not be got ready for the fray in time. At the last minute Butler's engine developed magneto trouble, and he was unable to get away in time, but started off some ten minutes late.



The Aerial Derby :
“ Chairing ” the
winner, Mr. J. H.
James. One
“ leg ” (on left) of
the chair is
formed by Mr. D.
Longdon, of the
Gloucestershire
Aircraft Co., while
on his right may
be seen Mr. L. R.
Tait - Cox, fellow
pilot and close
friend of James.

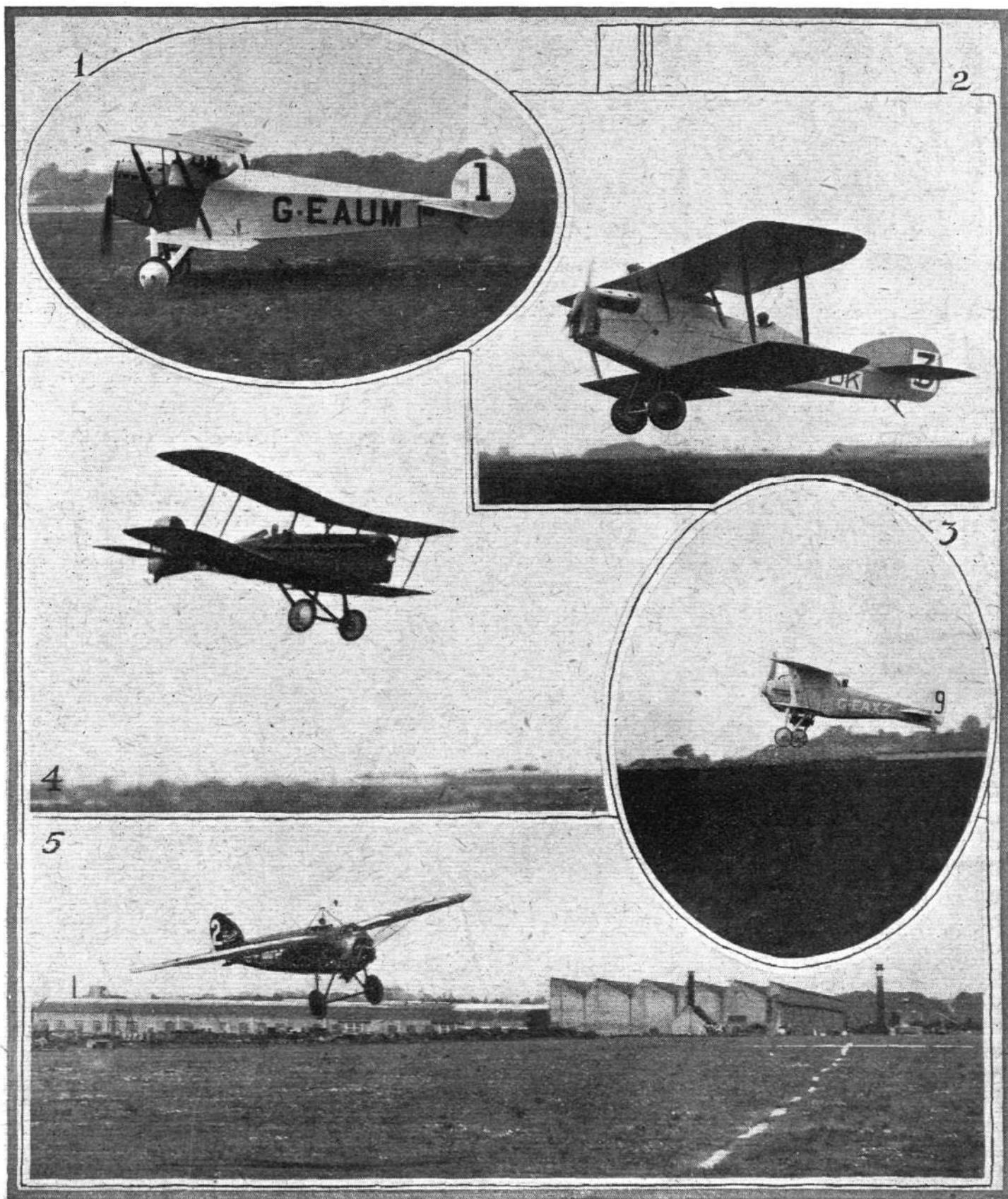
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A few minutes before James was signalled away, Hinkler came into view and started on his second lap, with James close on his heels—or rather, tail. By the way, the Baby rocked as it passed over, and it looked as if Hinkler was not having a particularly comfortable trip. News then came in that Stocken was down at Hounslow Heath with plug trouble.

At 15.23 (A.M. time) Carter completed his first lap, passing over in fine style, and seven minutes later Raynham came in. After another six minutes Haig unexpectedly hurtled over on the "Bullet." At 15.40 Tait-Cox arrived, but instead of continuing on his second lap he circled round and landed,

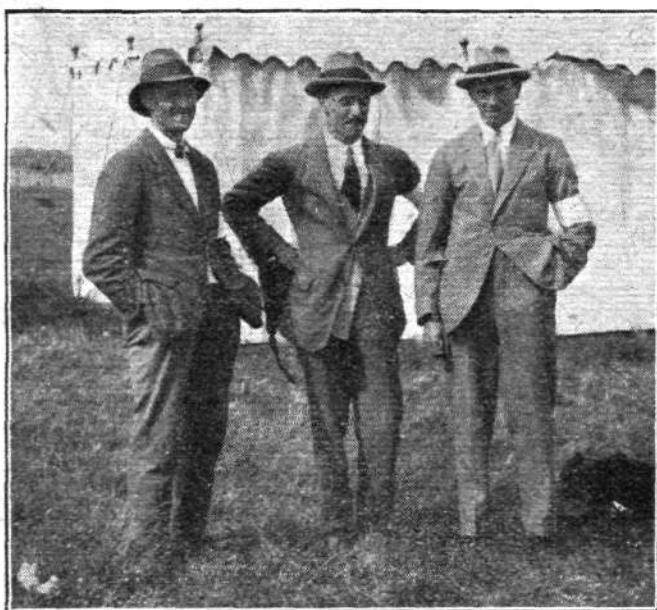
thus retiring from the race. A few minutes later three machines were observed approaching, the first to cross over proving to be Perry, the other two, who came in together one minute behind, being Butler and James. Butler also retired at this stage, leaving six machines in the air.

After this there was a brief lull in the proceedings before Flight-Lieut. Bulman (Farnborough) gave a magnificent display of stunt flying on a Nieuport Nighthawk fitted with a 350 h.p. Siddeley Jaguar. Starting with a zoom such as we have seldom had the pleasure of observing before, he came out of this with a half-loop. He then put up some



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FROM THE AERIAL DERBY : 1, Bert Hinkler gets away on the Avro Baby. 2, F. P. Raynham taking off on his Martinsyde F.6. 3, J. H. James leaving on the Gloucestershire Aircraft Co. Mars I. 4, Flight-Lieut. Longton crossing the line on one of the A.D.C. S.E.5a's. 5, L. L. Carter crosses the finishing line as first man home and winner of the Derby Handicap.



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AIR LEAGUE CHALLENGE CUP

The Kenley team: (left to right) Flight-Lieuts. Luxmoore, Robb and Chappell.

really beautiful loops, spins, rolls and corkscrew twists, concluding with an example of fast and slow flying past the enclosures. It may be mentioned that this particular Night-hawk was built by the Gloucestershire Aircraft Co., Ltd., who have the building rights for this machine.

Immediately after this three of the Derby machines were seen approaching, one some way to the south, and the excitement was intense, as it was apparent that there was every likelihood of a good finish. As they drew near we could distinguish them more clearly, but as they were coming in from different directions it was extremely puzzling to follow what actually happened at the finish. Carter on the Bristol



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The Uxbridge team : (left to right) Sqdn.-Ldr. Robinson, Flight Officer Gibbons and Flight-Lieut. Longton. Owing to the crash of an Avro the relay race between these two teams could not be flown, and the Cup remains for the time being with the present holders (Kenley).

fast machines—always a matter for some anxiety—and it was here that the one incident of the day which remained impressed on our mind occurred. Haig had effected a safe and neat landing, and had come to rest at the end of the enclosures. James came in to land shortly after, and it was noticed that he was going somewhat faster as he touched ground than was expected, with the result that the machine ran along some considerable distance, getting nearer and

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The Aerial Derby: Maj.-Gen. Sir Sefton Brancker, Director of Civil Aviation, presenting the Cups. From left to right: A. de H. Haig, who was second in the Handicap; L. L. Carter, winner of the Handicap, and J. H. James, winner of the Derby and third in the Handicap.

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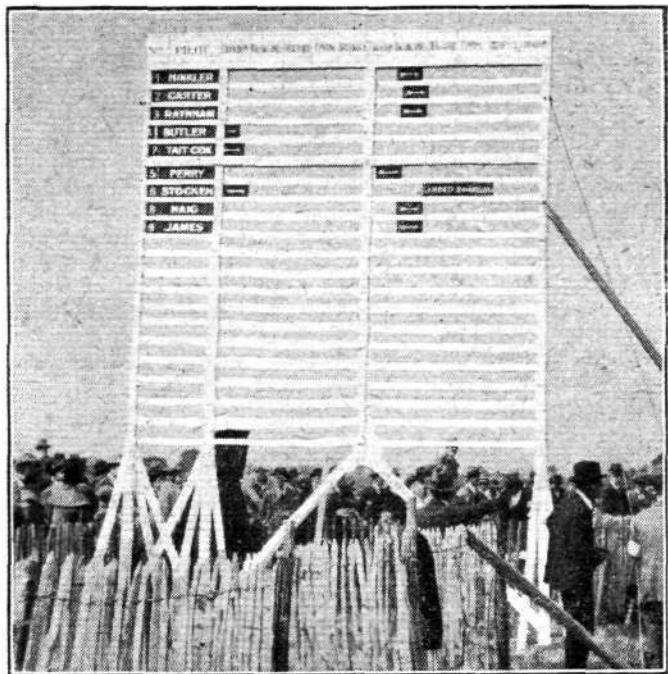
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mono. crossed the line first, thus winning the handicap, then Haig on the "Bullet" made for the line in the opposite direction, making a sharp turn to the left in order to cross it according to rules. At the same time James, flying parallel to the line, made a wide sweep round and crossed but a fraction of a second behind the "Bullet." However, it was obvious that he had won the "fastest time," and a roar of greeting went up accordingly.

We then directed our attention to the landing of the two

nearer the Bristol and a crowd of people who were standing on the aerodrome right in the way—where they certainly had no business to be. Had they not been there James would, no doubt, have had little difficulty in clearing the Bristol and pulling up along the "slipway" leading to Plough Lane. As it was, however, it looked pretty hopeless, but with marvellous skill and judgment he turned the machine carefully to the right just at the precise moment—a second sooner and he would have been over, and a second later he



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The Aerial Derby : The scoring board which showed the progress of the competitors.

would have been into the people. Thus he just missed the crowd, and all the damage resulting was a ripped tyre and a leaky radiator. However, all's well that ends well, and we congratulate "Jimmy" on the best "save" we have ever seen.

In the meanwhile Raynham arrived home, followed a little later by Hinkler on the Baby—an exceptionally fine performance in the case of the latter considering the weather conditions, and once again we express our admiration for the excellent combination of Hinkler-Avro-Baby-Green.

A start was then made for the Relay Race for the Air League Challenge Cup between teams from R.A.F., Kenley, and R.A.F., Uxbridge (the former being the holders of the Cup). The teams were made up as follows:—Kenley: Flight-Lieut. J. M. Robb (S.E.5a), Flight-Lieut. R. W. Chappell (Avro), and Flight-Lieut. F. L. Luxmoore (S.E.5a). Uxbridge: Flight-Lieut. W. H. Longton (S.E.5a), Flying Officer F. G. Gibbons (Avro) and Sqdn.-Ldr. F. L. Robinson (S.E.5a). The two respective S.E.5a's started off first, Longton getting a little way ahead of Robb, but at the end of the first lap of 8 miles the latter made a splendid landing close behind his team's Avro, which got away with little delay; the other Avro (Kenley) failed to get started. As Chappell approached the enclosure, however, his engine spluttered and then gave out, and matters looked very black, but with great presence of mind the pilot steered his 'bus towards the machine park alongside Plough Lane, and managed to land on the other side of the fence without hurt to the spectators or himself. Undercarriage, one, Avro, for the use of. Prop. do. This little incident caused a postponement of the Relay Race, but two of the S.E.5a's had a friendly two-lap race, in which Uxbridge (Longton?) romped home well ahead.

After this Maj.-Gen. Sir Sefton Brancker presented the prizes to the Derby winners, and just as he concluded the clouds rolled aside and Air Vice-Corpl. Bill Stickers wrote "Castrol" very prettily in the blue patch—and the clouds rolled back!

Shortly before six o'clock the last event on the programme was flown off, this being the August Open Handicap of 16 miles (two laps); first prize £30, second prize £10. Six machines lined up for this event as follows:—B. Hinkler (Avro Baby), 4 mins. 49 secs.; Maj. C. Draper (110 Le Rhone Avro), 4 mins. 24 secs.; A. S. Butler (D.H.37), 1 min. 9 secs.; Flight-Lieut. Robb and Flight-Lieut. Longton (both on S.E.5a's), 32 secs.; R. H. Stocken (Martinsyde F.4), scratch.

On completing his first lap Hinkler came down and retired, and as Draper's Avro did not start, this left four machines in the race. Longton was leading at the end of the first lap, Butler being next, with Robb close behind, but Stocken was some distance behind. Robb overhauled Butler towards the finish, but did not pass Longton; the order of finishing was thus Longton, Robb, Butler and Stocken.

The Mars I is doped with the "Titanine" blue and white racing scheme.

RESULTS OF SEVENTH AERIAL DERBY, AUGUST 7, 1922

No.	Pilot.	Machine.	Engine.	Handicap Allowance.	Time of Starting.	First Lap (99 miles).		Second Lap (99 miles).		Total Time.	Speed.	Fastest Time.	Handicap.	Position.
						Flying Time and Position.	Speed.	Flying Time.	Speed.					
1	Hinkler	Avro "Baby"	..	35 Green	1 22 34	1 52 26	1 17 28 ⁴ (1)	76.7	1 17 35 ¹	m.p.h.	76.6	—	—	—
2	Carter	Bristol Monoplane	..	100 B. Lucifer	0 47 9	2 27 51	0 55 18 ³ (2)	107	0 54 42 ¹	108.7	1 50 0 ⁴	107.85	4	1
3	Raynham	Martinsyde F.6	..	200 W.V.	0 39 35	2 35 28	0 54 57 (3)	108	0 53 25	111.2	1 48 12	109.6	3	—
4	Butler	D.H. 37	..	275 R.-R.	0 34 34	2 40 26	0 54 55 (8)	108.1	Retired	—	—	—	—	—
5	Tait-Cox	Mars III	..	200 B.R. 2	0 31 53	2 43 7	0 57 37 (5)	103.2	Retired	—	—	—	—	—
6	Per Y	S.E. 5A	..	200 W.V.	0 31 34	2 43 26	1 0 54 (6)	97.5	—	Landed	—	—	—	—
7	Stocken	Martinsyde F.4	..	300 H.S.	0 28 38	2 46 22	1 50	140	Hounslow, engine trouble.	1 21 57	145	2	2	2
8	Haig	Bristol Bullet	..	400 B.J.	0 18 43	2 56 17	0 39 32 (4)	177	0 33 34 (7)	178.7	1 6 48 ²	177.85	1	3
9	James	Mars I	..	450 N.L.	0 3 29	3 11 31	0 33 34	177	0 33 14 ²	—	—	—	—	—

B.=Bristol; W.V.=Wolseley Viper; R.R.=Rolls-Royce; H.S.=Hispano-Suiza; B.J.=Bristol Jupiter; N.L.=Napier; "Lion."

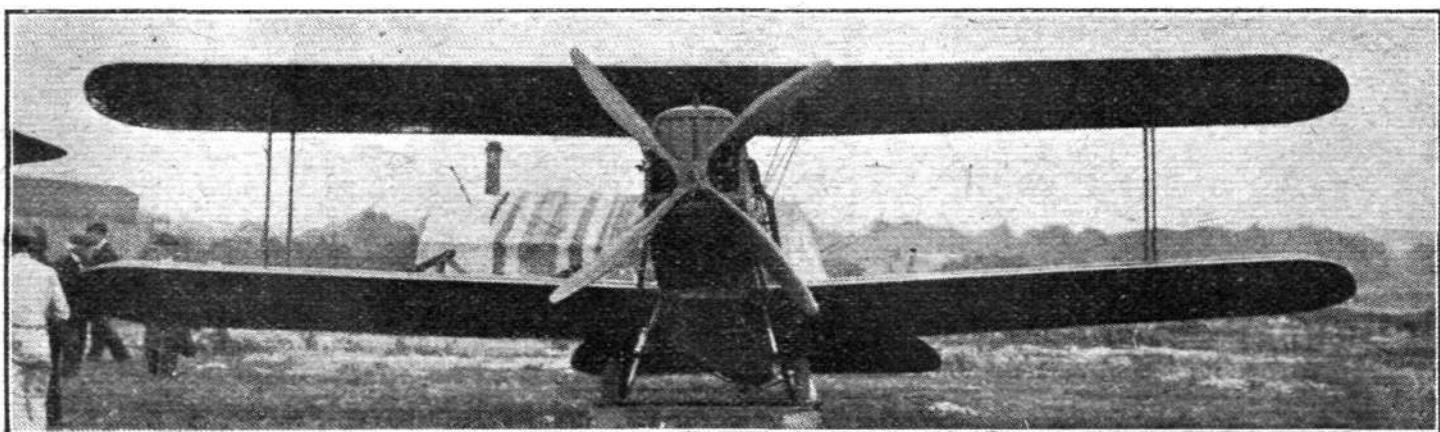
THE D.H.37

275 H.P. Rolls-Royce "Falcon" Engine

To the casual observer the new de Havilland 37, built for Mr. A. S. Butler as a fast sporting and touring machine, might appear to be just a common, straightforward tractor biplane without any very pronounced novel features and offering no field for speculation as to the merits or otherwise of its peculiar points; and from his point of view the casual observer would be correct. The 37 is a very straightforward design on orthodox lines, showing neither metal construction, cantilever wings, variable lift devices, nor semi-Diesel power plant, to mention but a few of the problems which are so

by the size of power plant, not to mention the effect on running costs of the size of engine, the smallest engine which will give the desired performance must be installed. And finally, the whole outfit must be as simple as possible so as to be easy to maintain and with a minimum of parts likely to get out of order. These were, briefly, the considerations with which the designers were faced when starting the design. Let us, next, examine their solution of the problems, as exemplified in the finished machine.

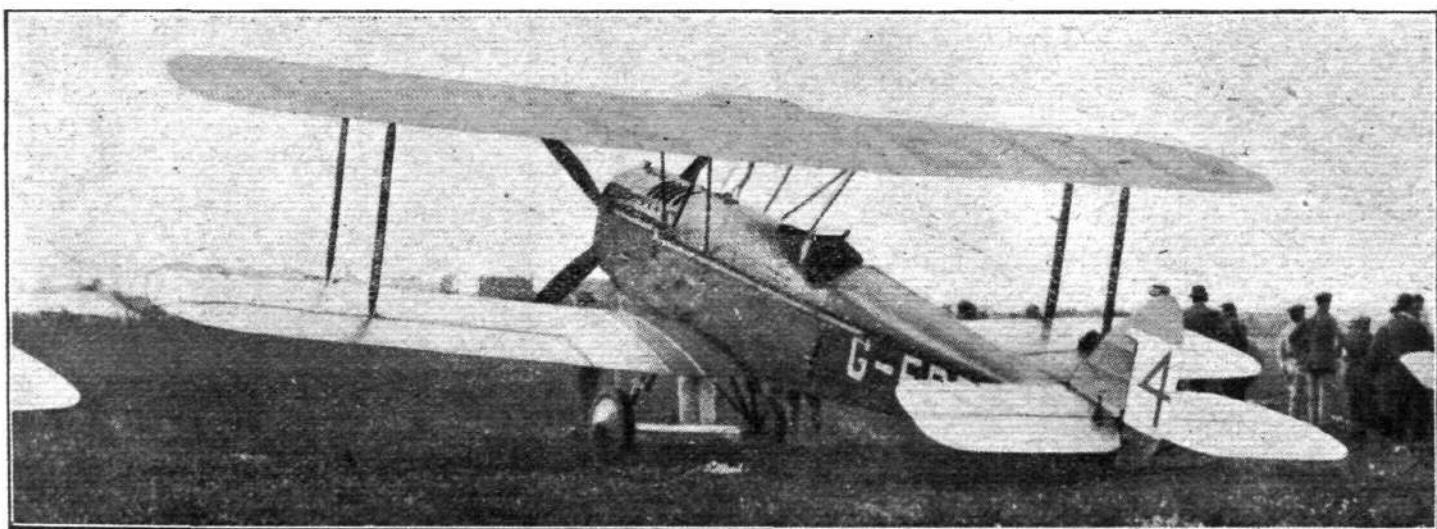
An inspection of the accompanying scale drawings and



THE D.H.37 : Front view.

prominently to the front at the present time. Nor is the machine a helicopter (although its climb is distinctly good). While thus the uninitiated might pass it by with but a cursory glance, except for its rather pleasing lines, there is much of interest to be found by those who like to look below the surface, as it were, in order to discover the ideas which were in the designer's mind, the objects at which he aimed and the methods adopted for attaining them. Viewed from this angle the new D.H.37 assumes a different aspect, and it is in this light that we propose to review its features.

photographs will reveal the fact that the D.H.37 is of very pleasing outline and of very clean design, and that it represents, perhaps, the maximum of refinement that is possible with a flat-sided fuselage and braced wings. Simplicity of construction was, as has already been pointed out, one of the desiderata, and the flat-sided, ply-wood covered body is considered to give this simplicity to the maximum extent. It might be pointed out that a similar construction is used in the D.H.34's, one of which has just completed close upon 60,000 miles during three months' flying, so that as regards



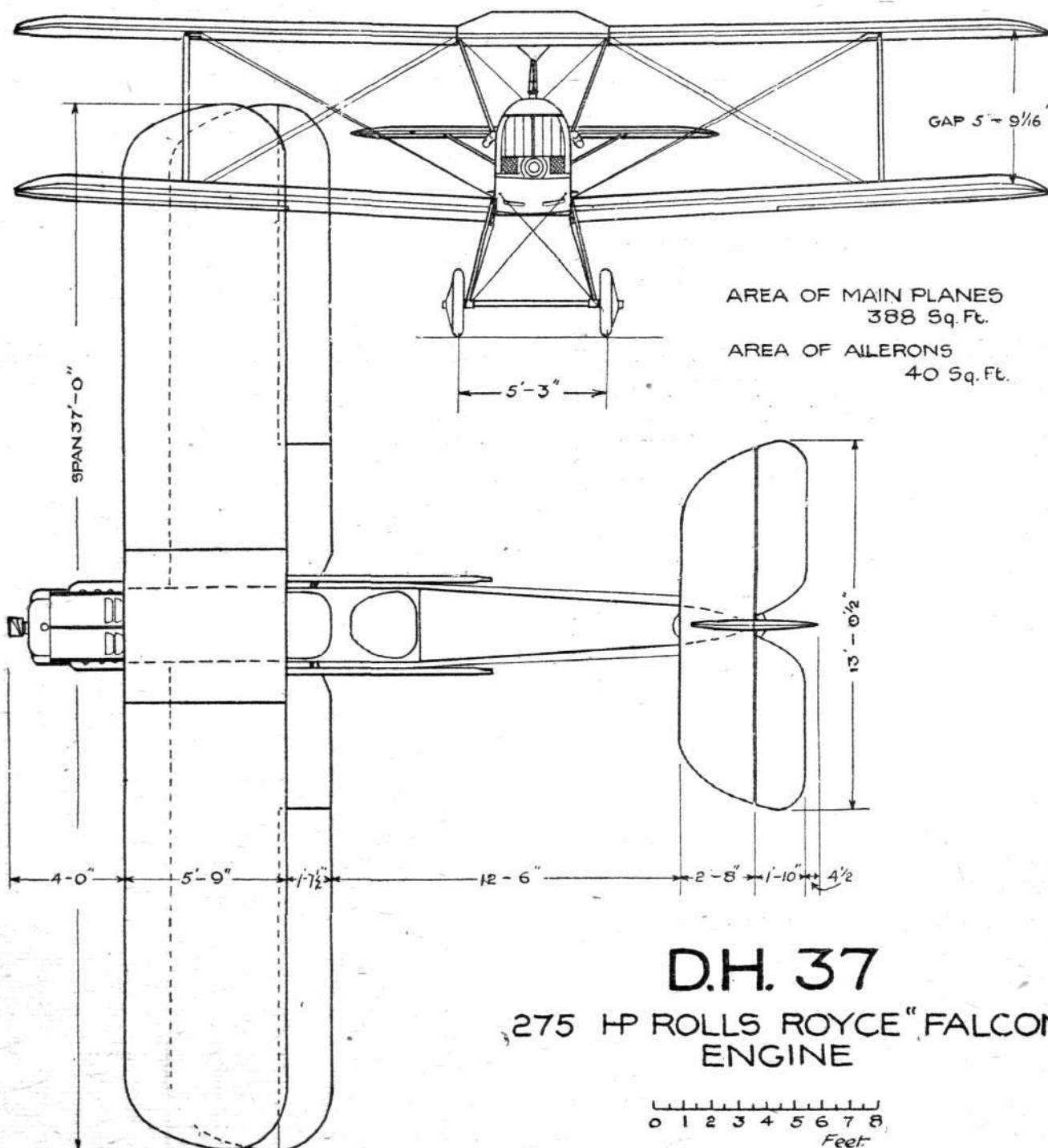
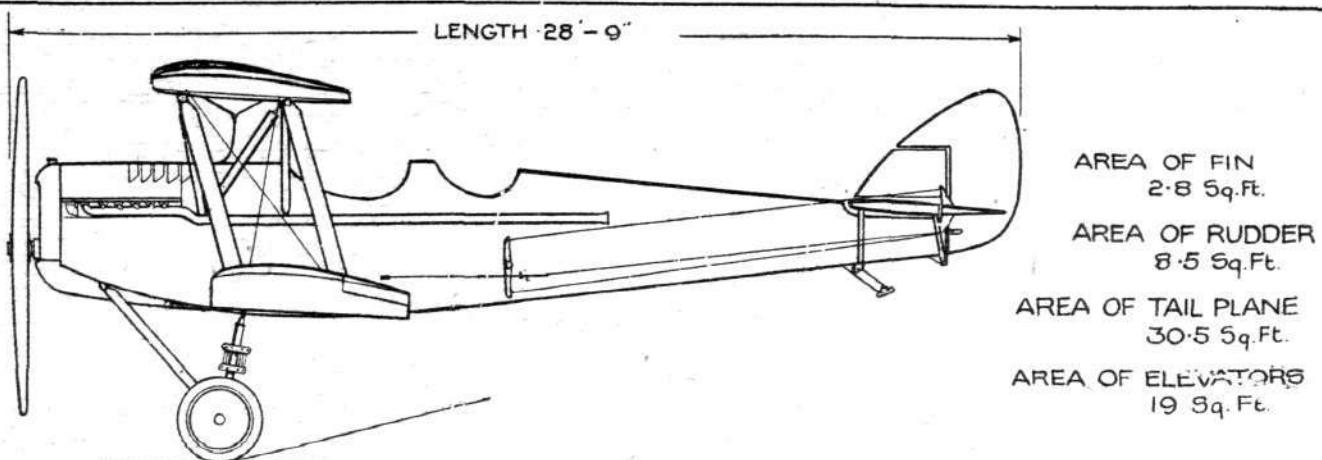
THE D.H.37 : Three-quarter rear view.

Designed in the first place as a machine on which the owner can go touring and take with him one or two friends, the 37 has accommodation for two passengers in addition to the pilot. As the owner may occasionally wish to take part in races, the machine must have a fairly good performance when flown light. In view of the fact that flights of considerable duration may occasionally be undertaken, the tankage must be generous. As duration is largely determined

robustness and hard-wearing qualities the ply-wood covered body appears to be entirely suitable. The absence of wire bracing (with the exception of the engine bays, where cable bracing is used in the bottom panels) avoids the necessity for keeping the body trued up after prolonged use, while there is no fabric to become slack or torn.

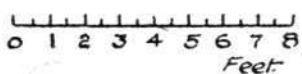
The simplicity of the wing bracing is attained by using a fairly thick wing section, which allows of using but one pair

AUGUST 10, 1922



D.H. 37

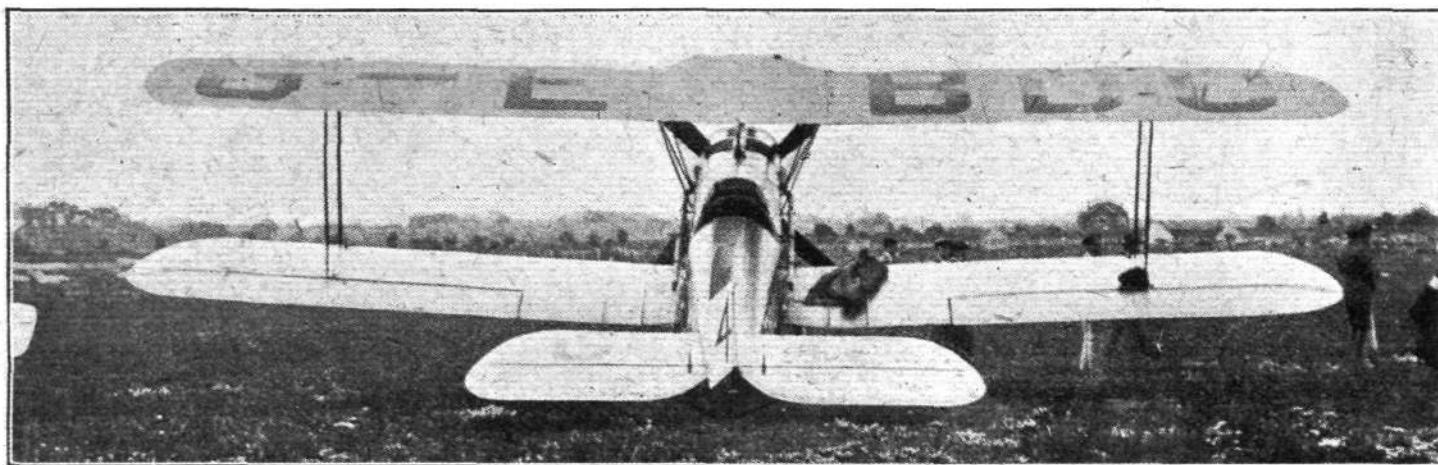
275 HP ROLLS ROYCE "FALCON"
ENGINE



THE DE HAVILLAND 37 : General Arrangement drawings.

of interplane struts on each side. This section—which is, we believe, similar to that used on the D.H.34—is one of the air-screw sections, with flat lower surface giving good spar depth. Constructionally the wings are of standard D.H. type, with spruce spars (laminated) and ribs. The two halves of the top plane are secured to the centre section by vertical bolts and external fish-plates, while the lower wings attach

While on the subject of control surfaces it might be mentioned that the ailerons are of somewhat unusual construction, especially as regards their leading edges. Fundamentally these consist of the usual channel section spruce spars, with their flat, closed side facing the rear spars. In order to obtain greater torsional stiffness this channel section has been reinforced by a horizontal U screwed and glued to the aileron



THE D.H.37 : Rear view.

to the sides of the fuselage by built-up sheet-steel forked plates. The top centre section is carried on raked steel struts of N formation, the sloping member of the N having threaded ends for adjustment.

A peculiarity of the 37 as compared with previous de Havilland designs is that ailerons are fitted to the bottom plane only. This results in considerable simplification of the controls, as well as leaving the top plane solid, and if sufficient lateral control can be maintained with two large ailerons on the lower plane, the system has much to recommend it. One reason for expecting that two ailerons will suffice is that the differential movement of the ailerons, which was first tried, with success, in the D.H.29 monoplane, has been incorporated. It will be recalled that with this system of lateral control the cranks are so arranged that one aileron moves through a greater angle in going up than does the opposite one in going down. The result is that one aileron acts as a balance for the other, rendering the load on the control column small even when a large aileron angle is obtained for a small angle of control column movement. This is one advantage. Another is that with this system a spin is less likely to be precipitated when using the ailerons at large angles of incidence, *i.e.*, near the stalling speed of the machine. The fitting of straight control cables and ball bearings in the controls further tend to give easy working of the controls.

The controls are so arranged that the aileron cables pass straight from the fuselage to chains over sprockets in the lower wings, no pulleys being used anywhere. Small cranks on these sprockets are so set in relation to one another as to give the differential movement to the ailerons. The elevator control incorporates a transverse shaft behind the pilot, from external cranks on which cables run straight to the elevator king posts, no fairleads being required. The transverse shaft is carried on external ball-bearings, the latter being covered by streamline casings of aluminium. In the case of the rudder cables a slight change of angle is necessary, and a length of rod of ample diameter, working in a guide on the outside of the fuselage, is therefore incorporated in the cable. With regard to the rudder, it is of interest to note that the king post is not, as in the majority of machines, passed through the rudder and secured to the leading edge by an elaborate fitting, but is in two halves, bolted to a stout block of wood screwed and glued to the leading edge of the rudder. Thus when storing spare rudders the king posts can easily be removed without interfering with the fabric covering, and not only is less space then taken up by the rudder, but there is no risk of bending the king posts or puncturing with them the fabric of another rudder packed in the same case or stored in an adjacent rack, as frequently happens when the king posts are left *in situ* on the rudders. It may be thought that such points as these are of minor importance, but in practice they amount to a good deal, and in the 37 it is by close attention to such "minor" points that the chief merit of the design lies.

leading edge. As the three-ply strip used is quite thin (only about $\frac{1}{8}$ in.), the reinforcement adds but very little to the weight of the aileron, but the increase in torsional stiffness is extraordinarily great. The aileron ribs are, of course, shaped at the front to fit the curve of the three-ply strip.

Reference has already been made to the fact that the D.H.37 has accommodation for two passengers in addition to the pilot. The latter occupies the aft cockpit, well clear of the wings, where his view is but very slightly obstructed. Just in front of him is the passengers' cockpit, which is somewhat longer, the passengers sitting tandem fashion. Dual controls are provided, but the control tube in the front cockpit can be removed by pulling it out of its socket. Both



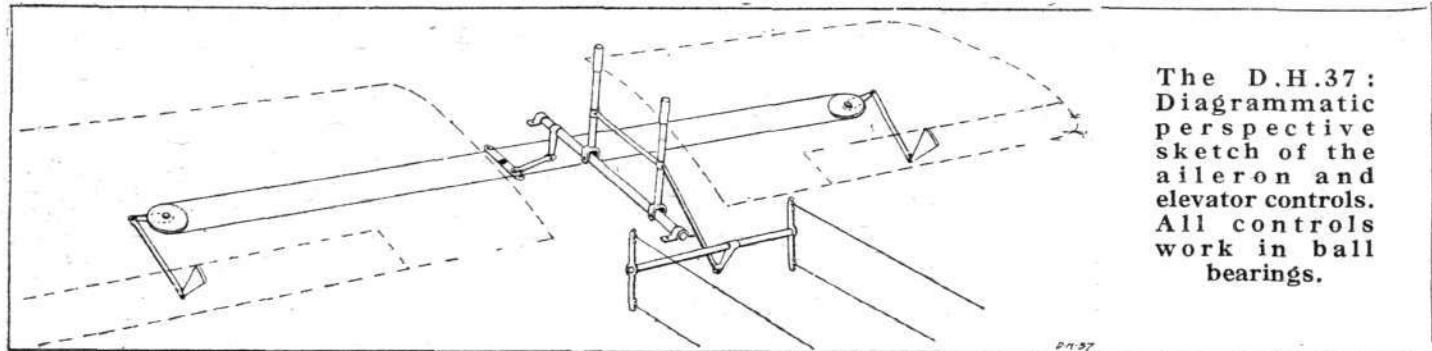
View of engine housing and undercarriage of D.H. 37.

foot bars are provided with adjustable pedals, so as to enable adjustment to be made for pilots of different height. A very complete instrument board is placed in front of the pilot, and we noticed that the outfit included one of the Vickers-Reid turn indicators. It might be added that, although not actually fitted up with wireless, the machine has all the wiring necessary for its installation, should the owner desire to fit a set later on.

The petrol system is interesting inasmuch as it combines direct gravity feed with ample tankage. The ideal would, of course, be to have all the petrol in the top centre section, but in order to do so it would be necessary to make the centre section very deep and unsightly, and, probably, bad aerodynamically. As the owner wished to have large tankage it was necessary to compromise, and consequently the top centre section has been built up as a gravity tank holding 40 gallons of petrol, while another tank of similar capacity is housed under the deck fairing of the fuselage, in front of the

of the crank-case, below the engine. The radiator, placed in the nose, straddles the reduction gear of the engine, and is remarkable for the fact that it is built up as a unit with its header tank and side frames. The ordinary practice of having a separate cowling is apt to give trouble, and by making the side frames and top of slightly thicker metal the whole unit is made very rigid, there is nothing loose to come adrift, and altogether a lot of trouble is avoided. The radiator itself is slung from the nose of the fuselage on trunnions, so that vibrations are not likely to affect it, while at the same time the removal of the radiator by undoing the trunnion bolts is a very quick operation.

The undercarriage is of similar type to that used so successfully on the D.H.34, i.e., a combination of rubber shock absorbers and oleo gear mounted on the rear legs of two Vees. The undercarriage is high, so as to give a quick get-off and, especially, rapid pulling up on landing. A feature of this undercarriage, apart from the combination of rubber and oleo



The D.H.37:
Diagrammatic
perspective
sketch of the
aileron and
elevator controls.
All controls
work in ball
bearings.

passengers' cockpit. Normally the machine is flown on the gravity tank, but if the supply is beginning to run low, as shown by the petrol indicator, a pump driven by the engine supplies pressure to the fuselage tank, and petrol is forced up into the gravity tank. The main objection to the pressure petrol system is that, with large main tanks and a very small header tank, the pumps have to be in operation almost continuously. With the present system this is not so, and there appears to be no reason to expect that any trouble will arise in connection with the fuel supply, the gravity tank being as large as it is. Thus, while departing from the theoretical ideal, the petrol supply of the D.H.37 will probably be found in practice as reliable as the pure gravity system. It might be mentioned incidentally that all the petrol leads are in the form of "Petroflex" tubing, which combines flexibility with imperviousness to the action of petrol.

The engine mounting for the Rolls-Royce "Falcon" engine is very simple, the two tubular engine bearers resting on brackets bolted to the vertical struts of the fuselage, and being braced diagonally by short tubes of smaller diameter. The oil tanks are slung, one on each side of the lower portion

gear, is that if the machine is landed with a slight side drift on and the wheel on the side towards which the machine is drifting touches before the other, the axle, hinged as it is by radius rods formed by the front members of the Vees, travels in such a way as to tend to direct the wheels along the path travelled by the machine. Thus the tendency to turn over on to a wing tip is reduced. Another advantage of this type of undercarriage is, of course, that a very much longer travel, and therefore better shock-absorbing quality, is provided.

The main characteristics of the D.H.37 are as follows, the weights stated being estimated, as are also the figures relating to performance:—Length over all, 28 ft. 9 ins.; span, 37 ft.; chord, 5 ft. 9 ins.; gap, 5 ft. 9 ins.; wing area, 388 sq. ft.; weight of machine empty, 2,118 lbs.; petrol and oil, 330 lbs.; pilot, 170 lbs.; disposable load, 700 lbs.; weight fully loaded, 3,318 lbs.; wing loading, 8.55 lbs./sq. ft.; power loading (based upon 275 h.p.), 12 lbs./h.p.; speed at 10,000 ft., 122 m.p.h.; climb to 10,000 ft. in 11 minutes; service ceiling, 21,000 ft. In the Derby the D.H. 37 did not get a chance, the start being delayed by ignition trouble.

THE LONDON-CONTINENTAL SERVICES FLIGHTS BETWEEN JULY 30 AND AUGUST 5, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and (in brackets) Number of each type flying
			Mails	Goods				
Croydon-Paris ...	... 56	192	21	43	52	2 40	D.H. 34 G-EBBS (1h. 56m.)	B. (4), D.H. 18 (1), D.H. 34 (5), G. (9), H.P. W.8B (3), Sp. (4).
Paris-Croydon ...	... 56	134	10	32	54	2 55	D.H. 34 G-EBBS (2h. 5m.)	B. (5), D.H. 18 (1), D.H. 34 (5), G. (9), H.P. W.8B (3), Sp. (4), Vu. (1).
Croydon-Brussels ...	... 12	65	7	10	12	2 35	D.H. 34 G-EBBR (2h. 6m.)	D.H. 34 (3), Vi. (1), Vu. (1), W. (1)-
Brussels-Croydon ...	... 11	43	—	3	10	2 38	D.H. 34 G-EBBR (2h. 13m.)	D.H. 34 (3), Vi. (1), Vu. (2), W. (1).
Croydon-Rotterdam-Amsterdam.	... 11	11	11	11	11	2 27	Fokker H-NABM (1h. 58m.)	F. (7).
Amsterdam-Rotterdam-Croydon.	... 11	11	11	11	11	2 40	Fokker H-NABS (2h. 2m.)	F. (7).
Totals for week, ...	157	456	60	110	150			

Incidental Flying.—During the week the De Havilland Co. maintained their daily service between Lympne-Ostend, with three trips a day each way, and using one D.H. 16 and two D.H. 9's. The Surrey Flying Service Avro also made a return trip (2 pass.) between Croydon-Ostend.

THE NEW AVELINE AUTOMATIC PILOT

SINCE our description in *FLIGHT* for February 3, 1921, of the Aveline Automatic Pilot considerable progress has been made with this extremely ingenious and successful instrument, and Auto Controls of 10, Heddon Street, W. 1, have just produced a new model, which is a considerable improvement on the original type.

It is not, at the present moment, our intention to give a detailed description of this instrument, as the article referred to above provides all the necessary information on this point. We will, however, just briefly outline the fundamental principle on which the Automatic Pilot is based.

Primarily the Automatic Pilot is composed of three principal components : (1) A windmill air compressor, with air reservoir, pressure gauge and safety valve. (2) Compressed air-operated cylinders containing pistons operating the aileron or elevator control. (3) The brim of the instrument, comprising what is practically a mercury inclinometer

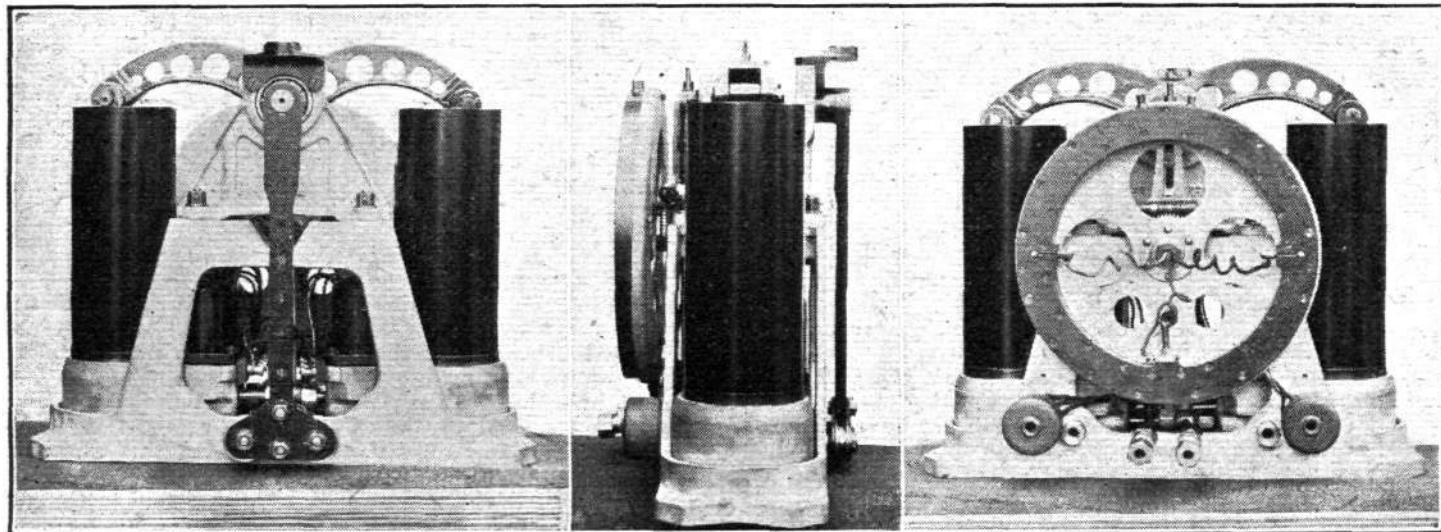
necessary equipment, including air tank and air pump, weighs approximately 50 lbs. A complete set comprising lateral and longitudinal stabilisers comes out at about 88 lbs., as against 145 lbs. in the case of the larger type.

Besides numerous minor improvements and adjustments which simplify its operation by the pilot, all electrical mechanism, wiring and tubing are easily get-at-able, and at the same time are out of the way, so that they are not liable to be damaged in the aeroplane.

The following comparative overall dimensions of the large and small types may be of interest : Length, large, 2 ft. 2 $\frac{1}{4}$ ins.; small, 1 ft. 1 $\frac{1}{4}$ ins. Width, large, 3 $\frac{3}{4}$ ins.; small, 6 $\frac{1}{2}$ ins. Height, large, 7 $\frac{1}{4}$ ins.; small, 11 $\frac{1}{2}$ ins.

This new model has satisfactorily stood a very severe bench test, and the one fitted to a Vickers "Vimy" with which the Air Ministry are carrying out tests has so far proved satisfactory.

That the Automatic Pilot is a thoroughly practical inven-



THE AVELINE AUTOMATIC PILOT. Three views of the latest model, which is about half the weight of the earlier and larger type.

which, through the medium of electric relay and electro-magnetic circuits, brings into operation the power cylinders and pistons operating the controls when the attitude of the machine calls for correction. It may be added that, as the machine inclines, and, therefore, the semi-circular tube containing the mercury, the latter establishes electrical contact on the side to which inclination takes place and the corresponding coil of the relay is energised.

The latest model of the Automatic Pilot is suitable not only for large machines, such as the Handley Page, or Farman Goliath, but, owing to its reduced weight, can also be used on smaller three or four-seater machines.

The weight of the main unit is 25 lbs., as against 43 lbs. for the large size, and a single installation, with all the

tion is borne out when it is stated that the earliest models made under the Aveline patents were tested by the British Government during a period of two years, and the Air Ministry then bought twelve stabilisers for further trials, now being conducted on different types of aircraft. The official reports describe the stabiliser as satisfactory for the purpose for which it was designed, and as the best appliance of its kind now available. Furthermore, Automatic Pilots for trial in military aviation have been bought by the French, Japanese, and U.S. Governments, whilst it has been satisfactorily applied to large commercial aeroplanes, both in England and France. The Farman Goliath which recently made a night trip between Paris and London was fitted with an Aveline Automatic Pilot.

APRIL-JUNE AIR TRAFFIC RETURNS

THE returns of air traffic on the cross-Channel routes to Paris, Brussels and Amsterdam, during the three months April-June, are now available from the Air Ministry.

During this quarter 764 machines departed from the London Terminal Aerodrome, Croydon, and 768 machines arrived, the total number using the aerodrome on Continental services being 1,532. This is a considerable increase on the figures for the same period last year, when 506 machines departed and 495 arrived.

The majority of machines were of British nationality, belonging to the Handley Page Transport, Ltd., the Instone Air Line, and Daimler Hire, Ltd. The figures by nationality are :—British, 915; French, 228; and Dutch, 189. Last year British machines numbered only 246 out of a total of 1,001 machines using the aerodrome.

The total number of passengers carried during the period was 3,128, and is a slight decline on the total of 3,565 carried a year ago. The proportion carried by British companies has, however, greatly increased, 2,402 travelling in British machines against 1,653 in the same period last year. British traffic therefore amounted to 76.8 per cent. of the total, whereas last year it was only 46.4 per cent.

The total weight of goods carried by aircraft to and from Croydon was 144 tons, which is a large increase on last year, when the figure was 56.9 tons. Half of this total was carried by French machines, but the British share of the traffic shows the largest proportionate increase, 53.6 tons having been transported by British machines against 4.9 tons a year ago.

The efficiency of British air services continues to be of a high standard. In April the efficiency of flights made and completed within four hours by British machines on the London-Paris route was 92.3 per cent. For May the figure was the same, and for June it rose to 95.2 per cent. The figures for French machines during the same period on the same basis were :—April, 71.3 per cent.; May, 85 per cent.; and June, 79.1 per cent.

Notwithstanding these figures it has to be noted, however, as stated in the last half-yearly report on Civil Aviation, that a considerable increase in traffic is essential if Air Transport firms are to obtain a commercial basis of operation, the passenger accommodation occupied on British machines being only 37 per cent. in April, 30 per cent. in May, and 31 per cent. in June, and the useful cargo capacity used only 44 per cent. in April, 44 per cent. in May, and 40 per cent. in June.

LONDON TERMINAL AERODROME

Monday evening, August 7, 1922.

THERE was a big influx of passengers during the week-end, both to and from the Continent. On Saturday 135 people were carried by the various companies, and the Sunday services were filled to capacity.

Handley Page Transport were in the unfortunate position on Sunday of having a full load for their service to Paris, and, owing to a last-minute breakdown, they had no machine to carry them. The Daimler Airway obligingly came to the rescue, and put an extra D.H.34 on the service to carry the Handley Page passengers.

Mr. Courtney has now got his Boulton and Paul "air taxi" at the air-station, and will, he hopes, be in a position to accept special bookings early this week. He is, for the moment, being held up by the customary A.I.D. formalities. This machine is a general-purpose craft. It is fitted with an R.A.F. engine, and is equipped with dual-control for tuition work. As an air taxi it seats two, and there is ample room for baggage in the fairing behind the back seat.

Handley Page Transport schedule a 4 p.m. service to and from Paris as from Friday last. It has been found that the general run of American tourists, who still form the bulk of the passengers, would rather travel in the afternoon. In sharp contrast to this is the experience which is now being gained with the early morning newspaper services. The Daimler Airway are finding that there is an appreciable demand for seats on this service, but that the people travelling by it are business men who are really in a hurry, and who appreciate the value of getting to Paris before 8 a.m. and yet being able to be in London at a late hour the night before, and, in addition, to have a good night's rest. This fact was, incidentally, borne out by the experience of the K.L.M. when they were running the early morning newspaper machine to the Hague Conference, Capt. Leverton having quite a number of people who travelled on this machine ringing up to book tickets for another journey and being quite disappointed when they found the early morning service was not now running.

The additions to the control-tower which are being made to accommodate the sound-ranging apparatus are now nearly complete, and the tower is beginning to look an imposing structure. In the past it has been a disappointment to many who saw it for the first time, but now there is some justification for the use of the word "tower."

Rumours of Subsidy Changes

RUMOUR has been busy during the week with a statement that the Air Ministry are considering an alteration in the rules governing the subsidy. It is suggested that, with the commencement of the next flying season, the arrangements whereby there are three British firms running on the London-Paris route will be modified, and that each of these three firms will be allocated a separate route, one being London-Paris, another London-Brussels, and the other London-Cologne—with an extension to Berlin. This last-mentioned route would appear to be merely an extension of the London-Brussels line, which leaves one firm with nowhere to go. Also, naturally, each one will want to be running London-Paris as the established route upon which it is known there are enough passengers for one company. Apart from this, however, the scheme has much to recommend it, and I am able to say that there is some foundation for the rumour, although no definite decision has, as yet, been arrived at.



Air Cadetships

THE following are declared by the Civil Service Commissioners to be the successful candidates at the competitive examinations held last June for admission to the R.A.F. Cadet College, but their admission is conditional on their having passed the medical examination. A table of marks will be sent to each candidate as soon as possible.

Name.	Marks.	Name.	Marks.
*Elias, A. W.	8,595	Woode, C. S. M.	6,177
Don, J. C.	8,594	*Waghorn, H. R. D.	6,017
*Brookes, H. H.	8,332	*Tillard, L. R. W.	5,371
Amers, J. H.	8,143	*Selwyn, F. E. J.	5,344
Bowles, J. E. W.	7,640	*Soames, T.	5,200
*Showers, L. J. G.	7,377	Macleod, H. G.	5,072
*Boyle, D. A.	7,083	Terry, P. McK.	5,037
Bonham-Carter, J. H.	6,742	Blackett, C. D.	4,823
*Montgomery, A. H.	6,655	Matthews, G. S. C.	4,814

Honorary King's Cadets who have qualified

*Atcherley, D. F. W. 6,122 *Atcherley, R. Ll. R. 4,791

* These candidates have received marks for military efficiency.

London to Marseilles by Air

TODAY saw the opening of the London-Marseilles service by the Messageries Aériennes. From now onwards machines will leave the air-station at 8 a.m. each Monday and Friday, and are scheduled to reach Marseilles at 5.10 p.m. There will be halts at Paris and Lyons—the actual flying time being 7½ hours. The return journey will be started at 9 a.m. on Tuesdays and Saturdays, London being reached at 6.30 p.m. Both Hispano "Spads" and "Goliaths" are to be used on this service, which will be run in three stages—London-Paris, Paris-Lyons, Lyons-Marseilles.

On Monday last Mr. Fokker, the famous Dutch aeroplane designer and constructor, visited the aerodrome to inspect the Daimler "express," G-EBBS, which has now completed 60,000 miles, and also to inspect the new Daimler Airway engine-testing plant. He was distinctly impressed by both, and was busily picking up hints from the Daimler organisation to use on his projected services in America next spring.

The weather is persistently against the Surrey Flying Services, and this week-end was no exception to this rule. In spite of this, however, they had a good number of joy-riders on Saturday, but Sunday was distinctly poor. Monday, of course, was entirely spoilt from their point of view, as the public were excluded from the aerodrome. This is one of the minor tragedies of holding race meetings at Croydon.

Seaplane Flight Round the World

CAPT. R. H. MACINTOSH, a Handley Page pilot, is to make an attempt, in company with another pilot and a navigator, to fly round the world in a seaplane. His companions will be Capt. MacCloughrey, D.S.O., and Capt. Tymms, M.C., of the Air Ministry, who will act as navigator. The seaplane is being built specially at the Fairey Aviation Company's works, and will be fitted with a 600 h.p. Rolls-Royce "Condor" engine.

An interesting visitor arrived at the aerodrome on Thursday in the person of little five-years-old George Risser, the son of one of the pilots of the Grands Express "Goliaths." He has already flown upwards of 5,000 miles, visiting by air Strassburg, Prague, Vienna, Warsaw and Bucharest, while during the week-end he flew with his father to Lausanne.

The Instone Air Line have now repaired the Vickers "Vimy," and one of the "Vulcans," which met with misfortune last week, and the Daimler Airways have received G-EBBU back from Stag Lane, where she has been rebuilt following the smash-up between the two D.H.34's in May. During the week the Instone Air Line carried an ecclesiastical load, consisting of one bishop and three clergymen, to Paris, and it is now suggested at the aerodrome that this will have broken their run of ill-luck.

The Messageries Aériennes are making determined efforts to capture the entire goods service between London and Paris and beyond. They have a goods collection and delivery service which is far ahead of anything previously attempted in air transport. A special van does nothing but run backwards and forwards between the aerodrome and London, picking up outward goods at the C.M.A. office in the Haymarket, and leaving all inward goods there. A fleet of motor-vans is constantly touring round the various agencies in London, and to customers, picking up and delivering the goods, the Haymarket office acting as a general clearing house.



Gordon Shephard Memorial Prize Essays, 1922

THE following subjects for essays have been selected for this year's competition for the Gordon Shephard Memorial Prize:—

(1) The use and employment of aircraft in open, as opposed to trench, warfare against a similarly equipped enemy.

(2) The employment of aircraft before and during a Fleet action.

Separate prizes will be awarded for each of the two essays.

The competition is open to all Royal Air Force officers, N.C.O.s. and men.

Gordon-Bennett Balloon Race

NINETEEN balloons started, on August 6, from Geneva for the Gordon-Bennett Balloon Race. One of the British competitors, the balloon which was to have been piloted by Lt.-Col. Dunville, did not start. Mr. Griffith Brewer is reported to have landed at 1 a.m. on August 7 at a point between Affoltern-am-Albis and Hedingen, near Zurich, while Mr. Ernest Allen alighted at 8.45 a.m. near Kühback in Bavaria.

THE SEAPLANE FLIGHT AROUND THE WORLD

Fairey Seaplane with Rolls-Royce "Condor" to be Used

As an up-to-date method of "showing the flag," a flight around the world should do much to uphold the prestige of British aviation. It is, therefore, with satisfaction that we learn of the proposed attempt, under the auspices of the Air League of the British Empire, by three young British aviators to circle the globe. The machine which it is proposed to use is a Fairey seaplane of the twin-float type, and the machine will be driven by a 600 h.p. Rolls-Royce "Condor" engine. The three aviators who are to make the attempt are Capt. Macintosh, who has for so long been associated with the Handley Page London-Paris air services; Capt. Tymms, of the Air Ministry Navigation Department; and Capt. McCloughry, of the Australian Flying Corps. All three men selected for the flight appear to have been well chosen. Certainly Capt. Macintosh has had unique experience of flying under all sorts of weather conditions, and he has on several occasions succeeded in bringing Handley Page machines across the Channel in weather which kept the Channel steamers in port. We do not know how much experience Capt. Macintosh has had of seaplane flying, but as the machine to be used is a twin-float seaplane, its handling should not be so very different from that of a land machine.

Regarding the machine itself, but little information is available at the moment; but it will probably follow fairly closely upon the lines of the long-distance machine on which the Portuguese aviators Cabral and Coutinho started out on their trans-Atlantic flight from Lisbon. Thus the type has been thoroughly tried out, and the lessons learned with the first machine should enable the constructors to incorporate any improvements which experience with the first machine may have suggested. We understand that the twin-float seaplane has been chosen mainly because in case of damage it is easier to repair or replace a float than it is to repair the hull of a flying boat. We do not know if it is the intention of the aviators to fit a land undercarriage for some of the stages of the flight, but it would appear that to do so would be a fairly simple procedure, and, in a measure, the effect

would be similar to that of using an amphibian machine, but with the difference that the amphibian gear would not have to be carried on board. Needless to say, the machine will be very fully equipped with all modern instruments, and a wireless set of good range will be carried.

The Rolls-Royce "Condor" is, at the moment, not so thoroughly tested out as is the famous "Eagle," which has the trans-Atlantic flights, the Cairo-Cape flight, and the London-Australia flight to its credit. As it is, except for size, designed very much on the lines of the "Eagle," there is no reason to think that it will not worthily uphold Rolls-Royce traditions, especially as, we understand, for most of the stages it will not be necessary to run it at anything like its full power. The most difficult parts of the journey will be from Kamchatka to Canada, and from America to Europe; and for the first part of these stages it is possible that the engine may have to be run nearly all out, until some of the fuel has been consumed. As, however, the "Condor" is very sturdily built it should be able to do this safely for the required length of time. At present the engine is, it will be remembered, being tried out in the Avro "Aldershot," which made its first public appearance at the Pageant at Hendon.

The route to be followed has not yet definitely been decided upon, but it will be from west to east. The Air Ministry has promised all possible assistance in the way of meteorological and wireless assistance, and it is, we believe, intended to send a spare engine out to Japan. Otherwise it is hoped to be able to complete the whole flight on the same machine. No doubt a few spares will be judiciously distributed along the route.

The actual date of starting has not yet been decided upon, but it appears probable that a start will be made early next year, possibly in January or February, and it is hoped to complete the tour of the world in about three months. We hope to be able to supplement these brief notes with further details later on.

IN PARLIAMENT

R.A.F. Reserve Annual Training

VISCOUNT CURZON, on August 1, asked the Secretary of State for Air what is the proposed period of annual training which it is proposed to lay down for a pilot and an observer, respectively, in the Air Force Reserve; whether they will, during their training, have an opportunity of actually working with the Fleet; and whether Parliament will have an opportunity of considering the conditions of training, service, and Regulations for this new force before it is brought into existence?

Captain Guest: The answer to the first question is that 12 hours' flying in all, on up-to-date war-type machines, will have to be completed in each year, in periods of not less than two nor more than six days in each quarter; to the second, that reserve officers who have served with the Fleet will be given practice in flying on and off aircraft carriers, and, further, that advantage will be taken of any opportunities that may arise for practising them in actual work with the Fleet; to the last, that, as pointed out to my noble and gallant friend on July 27, the reserve is not a new force and that the conditions of service and general Regulations were laid before Parliament on February 7 last.

Pilots

VISCOUNT CURZON asked what is considered to be the flying life of a pilot in the Royal Air Force; whether any difference exists between the flying life of a pilot working with the Royal Navy, the Royal Air Force, and the Army; and how long is required to train a pilot to work from an aircraft carrier?

Captain Guest: The answer to the first question is that no statistics are available to enable an exact statement to be made as to the flying life of a pilot, and to attempt to strike an average would be very misleading owing to the wide variations that are met with. There is no reason, however, why an officer of the Royal Air Force should not continue flying throughout his service; many of the senior officers of the Royal Air Force are flying regularly today.

As regards the second question, so far as experience has gone at present, there is no reason to suppose that there is any difference in the flying life of a pilot whether working with the Royal Navy, the Army, or the Royal Air Force.

The answer to the last question is three months on an average.

The Hawkinge Accident

SIR W. JOYNTON-HICKS asked the Secretary of State for Air whether his attention has been called to the death of a Royal Air Force pilot at Hawkinge on the 25th instant; and whether the aeroplane which crashed was fitted with a parachute?

Captain Guest: I am aware of the circumstances of the accident to which my hon. friend refers, so far as they have been revealed up to the present. The aeroplane, which was of a fighting type known as the Sopwith, is normally used as a single-seater, but was, in this case, one of those adapted as a dual control aeroplane for instructional purposes, thereby further reducing the surplus space available. The aeroplane was not fitted with parachutes, and no satisfactory type of parachute has been evolved for this small high-speed type of aeroplane, although considerable progress is being made. I would refer my hon. friend to my reply to his question of May 17, in which I informed him that no fighting aeroplanes are, at present, fitted with parachutes, and would add for his information that, as a result of the service trials referred to therein, parachutes for Avro aeroplanes are now being modified.

World Flight in 1923

LIEUT.-COL. MOORE-BRABAZON, on Aug. 2, asked the Secretary of State for Air whether an attempt is being made by an all-English seaplane to fly

round the world; and whether, if he be satisfied as to the genuineness of the attempt, assistance will be given by the Air Ministry?

Capt. Guest: I understand that a proposal is on foot to carry out next year a world flight, as mentioned. The participants in the enterprise have approached the Air Ministry, and we have satisfied ourselves that their proposed scheme is sound and has a reasonable chance of success. The Air Ministry will assist the scheme so far as is possible when the time comes. I understand that the Air League of the British Empire is also going to help.

Air Unit

VISCOUNT CURZON asked the Parliamentary Secretary to the Admiralty if there is any other country in the world in which the Air Force unit working with the Navy is under the control of a separate Air Ministry?

Mr. Amery: The answer is in the negative.

Capt. Wedgwood Benn: Was there any other country which, under a united Air Ministry like ours, did so well as we did in the War?

Mr. Amery: I cannot answer that question.

Establishments Abroad (Aircraft Defences)

VISCOUNT CURZON asked whether there are any aircraft defences to any of our dockyards, fuelling stations, or naval establishments abroad other than Malta?

Mr. Amery: As regards anti-aircraft defences, I would suggest that my noble and gallant friend should put a question to my right hon. friend the Secretary of State for War. I am informed by the Air Ministry that aircraft are available, if required, for the defence of Port Said, Suez and Aden.

Viscount Curzon: Is that in addition to Malta?

Mr. Amery: There are aircraft there.

Lieut.-Commander Kenworthy: Does that mean that there are no aircraft defences at Singapore or Hong Kong?

Mr. Amery: Yes, it does.

Lieut.-Commander Kenworthy: It is disgraceful then.

Civil Aviation

CAPT. WEDGWOOD BENN on August 3 asked the Secretary of State for Air what will be the effect of the redistribution of duties of the Air Council on the Department of Civil Aviation?

Capt. Guest: So far as Civil Aviation is concerned, the recent Order in Council redistributing the duties of the Air Council merely confirms the arrangement forecasted by me when introducing the Air Estimates, and actually in force for some months past. This is that Civil Aviation business is conducted by a Director of Civil Aviation, who is responsible to the Parliamentary Under-Secretary of State. The Under-Secretary of State is, of course, like other members of the Air Council, generally responsible to me, but, as a Minister of the Crown, he can deal authoritatively with matters of Civil Aviation policy with the advice and executive assistance of the Director of Civil Aviation and his staff.

Capt. Viscount Curzon: May I ask whether this means that something is really going to be done for Civil Aviation, and to save this industry for the country?

Capt. Guest: The industries of the country do not depend—

Viscount Curzon: I did not say "industries," but "to save this industry for the country."

Capt. Benn: Can the hon. and gallant gentleman say whether previously Civil Aviation was directly represented by its Chief on the Air Council?

Capt. Guest: Yes, Sir, that is so. The appointment of the late Controller-General of Civil Aviation was peculiar to himself about three and a half years ago, and was not necessarily regarded as a precedent.

THE ROYAL AIR FORCE

London Gazette, August 1, 1922

Air Vice-Marshal O. Swann, C.B., C.B.E., is appointed a Member of the Air Council as Air Member for Personnel; Aug. 1. Group Capt. R. P. Mills, M.C., A.F.C., is appointed Deputy Director of Organisation, Air Ministry; Aug. 1.

General Duties Branch

Flying Offr. J. Edelsten resigns his permanent commn., and is permitted to retain the rank of Lt.; July 21.

The following Flying Offrs. are transferred to the Reserve, Class B:—J. M. Bell; Aug. 1. C. P. Murchie; Aug. 2. Flt. Lt. W. B. Higgins relinquishes the rank of Flt. Lt. at his own request, and is appointed to the rank of Flying Offr., with seny. of April 18; July 10.

Store Branch

H. A. Lotherington is granted a short service commn. as a Flying Offr. on probation, with effect from, and with seny. of, July 19.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

Group Captains.—I. M. Bonham-Carter, O.B.E., from Headquarters, R.A.F., Ireland, to Command R.A.F. Depôt, Inland Area. 1.8.22. R. P. Mills, M.C., A.F.C., from Headquarters, R.A.F., India, to Air Ministry (Director of Personnel), on appointment as Deputy Director of Organisation. 1.8.22.

Wing Commanders.—C. R. S. Bradley, O.B.E., from No. 10 Group Headquarters (Coastal Area), to Half-pay List. 16.7.22. G. P. Grenfell, D.S.O., from Instrument Design Establishment (Inland Area) to R.A.F. Depôt (Inland Area). 19.7.22. Note.—The previous posting of this officer from Instrument Design Establishment, to No. 1 Flying Training School, notified on 17.7.22, is cancelled. J. T. Babington, D.S.O., from R.A.F. Depôt (Inland Area) to No. 7 Group Headquarters (Inland Area). 1.8.22. A. V. Bettington, C.M.G., from No. 12 Wing Headquarters (Ireland), to Command R.A.F., Ireland. 1.8.22. V. O. Rees, O.B.E., from R.A.F. Depôt (Inland Area), to Inland Area Aircraft Depôt (Inland Area). 27.8.22.

Squadron Leaders.—F. W. H. Lerwill, O.B.E., from School of Technical Training (Men) (Inland Area), to R.A.F. Depôt (Inland Area), as Officer in Charge of Central Trade Test Board. 24.7.22. R. H. Kershaw, from No. 10 Group Headquarters (Coastal Area), to School of Technical Training (Men) (Inland Area). 15.7.22. R. E. Bell, M.B. Note.—The previous notification wherein this officer was posted from R.A.F. Depôt to Half-pay List with effect from 27.7.22 is cancelled. A. J. Miley, O.B.E., from No. 4 Flying Training School (Middle East), to Aircraft Depôt, Egypt (Middle East). 30.6.22. A. Corbett-Wilson, from Aircraft Depôt, Egypt (Middle East) to Command Engine Repair Depôt (Middle East). 19.6.22. A. G. R. Garrod, M.C., D.F.C., from R.A.F. Depôt (Inland Area), to School of Army Co-operation

B. C. W. Pasco is granted a short service commn. as a Flying Offr. (Hon. Flt. Lt.), with effect from, and with seny. of, July 17. H. A. Tillman, M.D. (temp. Capt., R.A.M.C.), is granted a temporary commn. as a Flt. Lt., with effect from, and with seny. of, July 18.

London Gazette, August 4, 1922

General Duties Branch

The follg. offrs. cease to be sec'd. for duty with the Canadian Air Board, with effect from the follg. dates, and not as *Gazette*, June 13.—Sqrdrn.-Ldr. R. Leckie, D.S.O., D.S.C., D.F.C.; June 1. Flight Lieut. J. A. Glen, D.S.C.; May 16. Pilot Offr. on probation C. B. Horsfield is confirmed in rank; May 1. Flight Lieut. R. Halley, D.F.C., A.F.C., is placed on half pay scale B; Aug. 1.

Memorandum

Sec. Lieut. (temp. Lieut.) E. A. Tottle to be Lieut., Tech. Grade B; June 8, 1918 (since granted permanent commn.).

ROYAL AIR FORCE INTELLIGENCE

(Inland Area), on completion of course at Royal Naval Staff College. 21.7.22. A. R. Arnold, D.S.C., D.F.C., from R.A.F. Cadet College (Flying Wing), Cranwell, to Headquarters (Inland Area). 21.7.22. W. Sowrey, A.F.C., from R.A.F. Depôt (Inland Area), to No. 207 Squadron (Inland Area). 1.9.22. D. S. K. Crosbie, O.B.E., from R.A.F. Depôt (Inland Area), to School of Army Co-operation (Inland Area). 1.9.22. C. S. Wynne-Eyton, D.S.O., from R.A.F. Depôt (Inland Area), to No. 5 Flying Training School (Inland Area). 27.7.22. J. T. Whittaker, M.C., from No. 28 Squadron (India), to R.A.F. Depôt (Inland Area). (Supernumerary.) 24.6.22. P. J. Wiseman from Inland Area Aircraft Depôt (Inland Area), to Aircraft Depôt (Iraq). 18.7.22. L. C. Keeble, from R.A.F. Base, Leuchars (No. 205 Squadron) (Coastal Area), to Marine and Armament Experimental Establishment (Coastal Area). 1.8.22. G. B. Dacre, D.S.O., from Marine and Armament Experimental Establishment (Coastal Area), to R.A.F. Depôt (Inland Area) (Supernumerary). Whilst attending R.N. Staff course. 25.9.22. A. W. Tedder from No. 207 Squadron (Inland Area), to R.A.F. Depôt (Inland Area). (Supernumerary.) Whilst attending R.N. Staff course. 25.9.22.

Flight Lieutenants.—O. G. Gregson, from R.A.F. Depôt (Inland Area), to No. 10 Group Headquarters (Coastal Area). 11.7.22. A. W. Fletcher, D.F.C., A.F.C., from R.A.F. Base, Leuchars (No. 3 Squadron) (Coastal Area), to H.M.S. "Argus." 7.1.22. R. F. S. Leslie, D.S.C., D.F.C., A.F.C., from Headquarters, R.A.F., India, to Headquarters (Coastal Area). 30.4.22. J. A. Glen, D.S.C., from R.A.F. Depôt (Inland Area), to No. 39 Squadron (Inland Area). 1.8.22. A. C. Sanderson, D.F.C., from No. 39 Squadron (Inland Area), to No. 100 Squadron (Inland Area). 1.8.22. P. H. Cummings, D.F.C., from R.A.F. Depôt (Inland Area), to No. 207 Squadron (Inland Area). 1.8.22.

R.A.F. MEMORIAL FUND

At the meeting of the Executive Committee of the Fund on July 26 the hon. treasurer made a general statement as to the financial position of the Fund.

Regarding the War Memorial it was reported the bronze eagle and memorial generally would be ready for unveiling about the end of this year.

At the request of the Vicar of St. Mark's Church, South Farnborough, a memorial tablet is to be fixed in a Memorial Chapel of that Church, in view of the fact that the R.F.C. came into being at South Farnborough on May 13, 1912. It is hoped that this tablet will be fixed and ready for unveiling about the end of September next, and is of a very short and simple design. The Committee, while in no wise prepared to finance memorial tablets in other parts of the country, feel that as South Farnborough was the birthplace of the R.F.C. it was appropriate that a small sum should be granted for this purpose.

Air Vice-Marshal Sir Geoffrey Salmond, K.C.M.G., has been elected by the Vanbrugh Castle School Sub-Committee as Chairman in succession to his brother, Sir John Salmond; and Mr. W. S. Field was at the same time elected Deputy Chairman of that Sub-Committee.

It was reported to the Executive Committee that, in accordance with L.C.C. requirements, a fire staircase will shortly be completed at the Vanbrugh Castle School, on which the Committee are prepared to entertain a further

10 boys, making 25 in all, and, with a view to securing the boys at an early age, the minimum age for admission has been reduced from 7 to 5 years.

Air Vice-Marshal J. F. A. Higgins, C.B., A.O.C., Inland Area, R.A.F., was unanimously elected a member of the Executive Committee.

The Hon. Treasurer, Sir Charles McLeod, reported to the meeting the steps he had taken in consultation with Major A. M. A. Struben towards the creation of the "Struben Trust," which concerns a sum of money generously handed over to the trustees of this Fund by Major Struben, with a view to providing an annual income for the education of the children of officers who have served with No. 25 Squadron, R.A.F., and who meet with death or injury whilst engaged in flying with that squadron. The "Trust" is in memory of Major Struben's son, the late Flying Officer H. M. Struben, who met his death as the result of a flying accident. The trustees of the Fund, and the Executive Committee, have very gladly taken over the administration of this "Trust."

The Secretary, Lieut.-Col. W. E. S. Burch, drew the attention of the Committee to the R.A.F. Cricket Week, to be held between September 20 and 26 next at the Saffron's Cricket Ground, Eastbourne, under the patronage of H.R.H. The Duke of York. The Committee of this Cricket Week have very kindly written to say that the R.A.F. Memorial Fund shall benefit from any profits that may be made.

PERSONALS

Married

STUART McDONALD, R.A., attached R.A.F., only son of Mr. and Mrs. J. A. S. Watson, of Ellangowan, Willingdon, Eastbourne, was married on July 24 at the Church of Our Lady of Ransom, Eastbourne, to SHEILA EDYTHE HILARY, daughter of the late Mr. and Mrs. T. P. CROWLEY, of Allahabad, India.

To be Married

The engagement is announced between Flight-Lieut. EDWARD REGINALD OPENSHAW, R.A.F., late 1/4th Somerset

L.I., only son of the late Lieut.-Col. E. Hyde Openshaw and Mrs. Openshaw, of Cheddar, Somerset, and HELENA LOUISE, eldest daughter of Mr. and Mrs. CHARLES M. HAYDON, of Lynnfield, Kirkwall, Orkney.

A marriage is arranged, and will shortly take place quietly between Sqdn.-Ldr. RYAN, R.A.F., only son of Nicholas Ryan, of Melbourne, Australia, and IRENE, widow of Maj. ERNEST JOHNSTON, D.S.O., Seaforth Highlanders, and daughter of Sandford Storey.

MR. PATRICK ALEXANDER

In the *London Gazette* of August 1 appears the following notice under "Receiving Orders in Bankruptcy": "Alexander, Patrick Young, Flat 54, Whitehall Court, Gentleman."

Anything more surprising and pathetic than this brief announcement it would be difficult to find in the world of aeronautics. At first glance, it was almost unbelievable, but following a visit from Mr. Alexander himself, no possibility of mistake remained. Mr. Patrick Alexander had himself quietly done the deed, as he had in the past years quietly made so many generous gifts towards the encouragement and progress of aviation. That it should have become necessary for Mr. Alexander to go through such a procedure must come as a terrible shock to those who know him and who have been witness to his open-handed and repeated generosity in the past towards so many pressing needs of aeronautical matters in their struggling days of birth.

It goes without saying that steps will be taken to relieve such a position for Mr. Alexander, and it behoves those who have, in many ways, directly benefited from the effect of the past gifts of this momentarily embarrassed patron of the great science to come forward and see that, without delay, a second notice in the *Gazette* is possible announcing the annulment of the original order. The amount is not very serious, we understand, and we hope, therefore, to hear that steps are being taken to handle the unfortunate position.

For the benefit of those who are not intimately acquainted with the early history of flying, it may be well to recall briefly some of the past good work of Mr. Alexander. Always a great traveller, Mr. Patrick Alexander met practically all the early pioneers of flying, those working on lighter-than-air problems as well as the advocates of heavier-than-air machines. Quite early he took up ballooning, and as long ago as 1894 he made a parachute descent from a hot-air balloon. He followed closely the work of such early experimenters as Lilienthal and the Wright brothers, Octave Chanute, Sir Hiram Maxim, Herring, Graham Bell and Langley, with all of whom he was personally acquainted.

In 1897, Mr. Alexander visited Count Zeppelin at Friederichshafen, and later he became acquainted with M. Santos Dumont in France. Mr. Alexander was ever a believer in the large airship, and in the very early days; before an airship had ever flown more than a very few miles, he expressed the opinion that the day would come when we should regard airship travel as a regular means of transport.

In 1911, Mr. Patrick Alexander offered a £1,000 prize for an aero engine. This competition was won by the Green engine, but certain Government stipulations as regards the conditions resulted in a postponement. When the competition was held later, the Green engine was again victorious.

Clearly realising the importance of education to the future of the growing generation, Mr. Patrick Alexander has always been a keen supporter of schools and colleges, and in 1915 he handed to the Headmaster of Imperial Services College, Windsor, a magnificent gift in the form of a cheque for £10,000 "for the training of character and development of knowledge" among the boys of the school. He had previously given the College an aero-laboratory, fully equipped with wind tunnel and accessories.

We might go on enumerating and reminding our readers of good deeds done by Mr. Alexander, but ample has been said to indicate the irony of fate which has now led to the announcement in the *Gazette*. If ever a man deserved to be helped out of an embarrassing situation, Mr. Patrick Alexander does.

CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

BRITISH AIRWAY EFFICIENCY

[2059] With reference to the article entitled "British Airway Efficiency," on page 422 of *FLIGHT* for July 27, 1922, we should like to point out that their method of calculating efficiency on flights attempted as against flights completed is extremely misleading. By this method any firm with reasonably efficient machines could easily obtain 100 per cent. efficiency by refusing to fly in doubtful weather.

On the above basis the Royal Dutch Air Service has an efficiency record of 99 per cent. for June, one flight not having been completed owing to bad weather. Moreover, this includes the only two completed flights made between Terminal Aerodrome and Terminal Aerodrome made by any machines on the day of the great gale.

A much fairer standard is to be found in a table of efficiency

where flights advertised are compared with flights made, in *The Times* of Friday, July 14, 1922.

If the record of the Royal Dutch Air Service for flights advertised as against flights completed were added to this table, it would read as follows:

	Flights Advertised.	Flights Made.	Per- centage.
Royal Dutch Air Service ..	103	91	88.35
Daimler Airways ..	104	84	80.77
Instone Air Line ..	108	69	63.89
Handley Page ..	104	66	63.46

It is therefore not unnatural that we object to the inference in the concluding paragraph of the article in *FLIGHT* referred to above, which, after mentioning one French firm, lumps "all other companies" together with an efficiency of 76.2 per cent.

ROYAL DUTCH AIR SERVICE.

H. SPRY-LEVERTON,
Aerodrome Manager.

Waddon, July 31.

Foreign Honours

The following decoration has been conferred in recognition of valuable services rendered:

Order of the Sacred Treasure (Japan), Third Class.—Lieut.-Col. C. H. Meares, late R.A.F. (for aviation services in Japan).

R.A.F. Boy Mechanics

The Civil Service Commissioners give notice that an open competitive examination of candidates for entry as boy mechanics to the Royal Air Force will be held in London, Edinburgh, Birmingham, Chatham, Plymouth and Portsmouth on November 10. No person will be admitted to compete from whom the Secretary of the Civil Service Commission has not received, on or before September 28, an application, in the handwriting of the candidate, on a prescribed form, which may be obtained from the Secretary at once.

PUBLICATIONS RECEIVED

Reports and Memoranda, Aeronautical Research Committee:

Report No. 131. *Aerial Navigation and Navigating Instruments.* National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Report No. 140. *Pressure Distribution over the Rudder and Fin of an Airplane in Flight.* By F. H. Norton and W. G. Brown. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Report No. 147. *Standard Atmosphere.* By W. R. Gregg. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motors
The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1921

Published August 10, 1922

- 1,161. ZEPPELIN-WERK LINDAU GES. and C. DORNIER. Flying Boat. (157,267.)
- 1,163. ZEPPELIN-WERKE GES. and A. ROHRBACH. Monoplane flying-machines. (157,269.)
- 14,541. L. E. BAYNES. Variable-pitch propeller. (183,011.)
- 16,213. H. M. FRANZEN. Aeroplanes. (183,023.)
- 30,034. DEUTA-WERKE VORM. DEUTSCHE TACHOMETERWERKE GES. Securing means for indicators to instrument-boards. (175,601.)
- 31,042. BLACKBURN AEROPLANE AND MOTOR CO., LTD., A. C. THORNTON and G. E. PETTY. Maintaining the contents of reservoirs, etc., carried by aircraft, at a required temperature. (183,085.)

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